#### **ENVIRONMENTAL CHEMISTS**

Date of Report: January 6, 1997
Date Received: December 17, 1996

Project: Absorbent/D007 Sludge, PO #M55556 Date Samples Extracted: December 18, 1996

Date Extracts Analyzed: December 20 and 30, 1996

## RESULTS FROM THE ANALYSIS OF THE SLUDGE SAMPLE FOR TCLP METALS IN ACCORDANCE WITH 40 CFR PART 261 Samples Processed Using Method 1311/3005A

Results Reported as mg/L (ppm)

Sample ID	<u>M55556</u>	<u>Method Blank</u>	TCLP Limits		
Analyte:					
Arsenic	<0.5	<0.5	5.0		
Barium	<1	<1	100		
Cadmium	<0.1	<0.1	1.0		
Chromium	1.7	<0.5	5.0		
Lead	<0.5	<0.5	5.0		
Selenium	<0.5	<0.5	1.0		
Silver	<0.5	<0.5	5.0		
Mercury	< 0.02	<0.02	0.2		

#### **ENVIRONMENTAL CHEMISTS**

Date of Report: January 6, 1997
Date Received: December 17, 1996

Project: Absorbent/D007 Sludge, PO #M55556

#### QUALITY ASSURANCE RESULTS FOR TCLP METALS BY INDUCTIVELY COUPLED PLASMA (ICP) Samples Processed by Method 1311 Samples Analyzed by Method 6010

Laboratory Code: 74617 (Duplicate)

Analyte:	Reporting Units	Sample Result		licate sult	Relative Percent Difference	Acceptance Criteria
Arsenic	mg/L (ppm)	< 0.5	<(	0.5	nm	0-20
Barium	mg/L (ppm)	<1	<1	L	nm	0-20
Cadmium	mg/L (ppm)	< 0.1	<(	D.5	nm	0-20
Chromium	mg/L (ppm)	1.7	1	2.4	34a	0-20
Lead	mg/L (ppm)	< 0.5	<(	0.5	nm	0-20
Selenium	mg/L (ppm)	< 0.5	<(	0.5	nm	0-20
Silver	mg/L (ppm)	< 0.5	<(	0.5	nm	0-20

Laboratory Code: 74617 (Matrix Spike)

	Reporting	Spike	Sample	%	Recovery	Acceptance	Relative Percent
Analyte:	Units	Level	Result	MS		Criteria	Difference
Arsenic	mg/L (ppm)	10	< 0.5	98	98	50-150	0
Barium	mg/L (ppm)	5	<1	108	107	50-150	1
Cadmium	mg/L (ppm)	5	< 0.1	98	98	50-150	0
Chromium	mg/L (ppm)	5	1.7	100	98	50-150	2
Lead	mg/L (ppm)	10	< 0.5	98	99	50-150	1
Selenium	mg/L (ppm)	10	< 0.5	104	104	50-150	0
Silver	mg/L (ppm)	2	< 0.5	99	96	50-150	3

Laboratory Code: Spike Blank

	Reporting	Spike	% R	lecovery	Acceptance	Relative e Percent
Analyte:	Units	Level	MS	MSD	Criteria	Difference
Arsenic	mg/L (ppm)	10	98	98	80-120	0
Barium	mg/L (ppm)	5	110	103	80-120	7
Cadmium	mg/L (ppm)	5	99	96	80-120	3
Chromium	mg/L (ppm)	5	100	96	80-120	4
Lead	mg/L (ppm)	10	99	.98	80-120	1
Selenium	mg/L (ppm)	10	104	101	80-120	3
Silver	mg/L (ppm)	2	96	98	80-120	2

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

a - The analyte was detected at a level less than five times the detection limit. The RPD results may not provide reliable information on the variability of the analysis.

#### **ENVIRONMENTAL CHEMISTS**

Date of Report: January 6, 1997 Date Received: December 17, 1996

Project: Absorbent/D007 Sludge, PO #M55556

## QUALITY ASSURANCE RESULTS FOR MERCURY BY COLD VAPOR AA (METHOD 7470A)

Laboratory Code: 74617 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Mercury	mg/L (ppm)	<0.02	<0.02	nm	0-20

Laboratory Code: 74617 (Matrix Spike)

	Reporting	Spike	Sample	% F	Recovery	Acceptance	Relative Percent
Analyte:	Units	Level	Result	MS	MSD	Criteria	Difference
ipan Kaliber Sui							
Mercury	mg/L (ppm)	0.03	< 0.02	101	103	80-120	2

Laboratory Code: Spike Blank

	Reporting	Spike	% R	ecovery	Acceptance	Relative Percent
Analyte:	 Units	Level	MS	MSD	Criteria	Difference
Mercury	mg/L (ppm)	0.03	100	107	80-120	7

 $\ensuremath{\mathsf{nm}}$  - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

FRIEDMAN & BRUYA, INC. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282

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# SAMPLE CHAIN OF CUSTODY

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#### **ENVIRONMENTAL CHEMISTS**

James E. Bruya, Ph.D. Beth M. Albertson, M.S. Bradley T. Benson Kelley D. Wilt 3012 16th Avenue West Seattle, WA 98119-2029 TEL: (206) 285-8282 FAX: (206) 283-5044

January 6, 1997

#### INVOICE # 97ACU0106-2 DUPLICATE COPY

Accounts Payable Alaskan Copper Works 628 South Hanford Seattle, WA 98134

RE: Project Absorbent/D007 Sludge, PO #M55556: Results of testing requested by Gerry Thompson, Project Manager for material submitted on December 17, 1996.

1 sludge sample analyzed for	
TCLP Metals @ \$180 per sample	\$ 180.00
얼굴 하나 얼마나 살아 얼마를 받았다. 그리는 그 아니는 그는 그는 그를 다 먹었다.	
Amount Due	\$ 180.00

#### **ENVIRONMENTAL CHEMISTS**

James E. Bruya, Ph.D. Beth M. Albertson, M.S. Bradley T. Benson Kelley D. Wilt 3012 16th Avenue West Seattle, WA 98119-2029 TEL: (206) 285-8282 FAX: (206) 283-5044

January 6, 1997

Gerry Thompson, Project Manager Alaskan Copper Works 628 South Hanford Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on December 17, 1996 from your Absorbent/D007 Sludge, PO #M55556 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kurt Johnson Chemist

keh

Enclosures ACU0106R.DOC FRIEDMAN & BRUYA, INC. 3012 16th Avenue West Seattle, WA 98119-2029 (200) 285-8282

# SAMPLE CHAIN OF CUSTODY

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